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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/931,763	08/20/2001	Masanori Nakamura	107318-00004	6959

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EXAMINER

GOFF II, JOHN L

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 04/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/931,763

Applicant(s)

NAKAMURA ET AL.

Examiner

John L. Goff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-27 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 13-27 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/355,946.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/31/04.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to the amendment filed on 12/27/04.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102/103

3. Claims 13 and 27 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nippon (JP 60-166450) as evidenced by the admitted prior art (Specification page 7, lines 17-23).

It is noted the admitted prior art is used only as evidence of an inherent property of the materials taught by Nippon such that its inclusion in the 35 U.S.C. 102(b) rejection is proper (See MPEP 2112).

Nippon discloses a method for dry laminating **at least** two plastic films and a substrate. Nippon teaches a first plastic film comprising oriented polyolefin such as oriented high-density polyethylene. Nippon teaches a second plastic film comprising a polyolefin having a melting point lower than that of the first plastic film. Nippon teaches a method comprising covering one surface of the second plastic film with the first plastic film, covering the uncovered/opposite surface of the second plastic film with the substrate (e.g. a sheet), and applying heat and pressure to the layers to form a laminate, the applied heat at a temperature between the softening point of the second plastic film up to the softening point of the first plastic film (Page 1, lines 6-23 and

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Page 3, lines 19-25 and Page 4, lines 1-12 and Page 5, lines 25 and Page 6, lines 1-25 and Page 7, lines 1-18 and Page 8, lines 2-11 of the English translation).

Regarding the laminating temperature as below the melting point of the first, i.e. oriented, plastic film, as noted above the laminating heat applied may be at the softening point of the second plastic film such that the limitation is met. Furthermore, in view of the specific teaching by Nippon to maintain the orientation of the first plastic film during lamination and to use the lowest lamination temperature possible (Page 7, lines 10-18 and Page 12, lines 7-16), it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine/optimize the heating temperature within the range taught by Nippon so as to maintain the orientation of the first plastic film as doing so would have required nothing more than ordinary skill and routine experimentation.

Regarding the average coefficient of linear expansion (LEC), Nippon does not specifically disclose that the oriented polyolefin film has an average LEC not exceeding 5×10^{-5} ($^{\circ}\text{C}$) in the 20-80 $^{\circ}\text{C}$ temperature range. However, it is noted the oriented polyolefin materials employed in Nippon, particularly oriented high-density polyethylene, are the same as those claimed by applicant, and they are consistent and in agreement with applicants specification including applicants preferred materials (Page 9, lines 7-11) such that it appears an average LEC not exceeding 5×10^{-5} ($^{\circ}\text{C}$) in the 20-80 $^{\circ}\text{C}$ is inherent to the oriented polyolefin materials taught by Nippon. Furthermore, the admitted prior art (Applicants specification page 7, lines 13-23) discloses "An average linear expansion coefficient of polyolefin in an unoriented state is generally greater than 5×10^{-5} ($^{\circ}\text{C}$) in the 20-80 $^{\circ}\text{C}$ range. Due to the inclusion of the oriented polyolefin material, the polyolefin article of the present invention exhibits a value of not

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exceeding 5×10^{-5} ($^{\circ}\text{C}$) for average coefficient of linear expansion in the in the 20-80 $^{\circ}\text{C}$ range, as specified above. In other words, the oriented polyolefin material is included in the polyolefin article so that its average coefficient of linear expansion in the 20-80 $^{\circ}\text{C}$ range is maintained at a value of not exceeding 5×10^{-5} ($^{\circ}\text{C}$)” (Emphasis added). Thus, in view of the admitted prior art it appears it is unoriented polyolefin materials that have average LEC values greater than 5×10^{-5} ($^{\circ}\text{C}$) in the 20-80 $^{\circ}\text{C}$ range while oriented polyolefin materials exhibit average LEC values not exceeding 5×10^{-5} ($^{\circ}\text{C}$) such that the admitted prior art is evidence that the claimed LEC values are inherent to the oriented polyolefin materials taught by Nippon.

Claim Rejections - 35 USC § 103

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claims 13 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gash (U.S. Patent 4,355,076) in view of the admitted prior art (Specification page 7, lines 17-23).

Gash discloses a method for dry laminating at least two plastic films of same or different nature (e.g. each film may be oriented or unoriented and the films may have different melting points) wherein the method comprises contacting the films and heat pressing the films up to the melting temperature of the film having the lowest melting point to bond the films and form a low peel strength composite. Gash teaches the plastic films may comprise oriented polyolefins including high-density polyethylene (Column 1, lines 6-16 and Column 2, lines 25-27, 39-41, 46-50, and 55-68 and Column 3, lines 1-12). Gash does not specifically disclose forming a laminate having the layer configuration of a polyolefin film having on a first surface an oriented polyolefin film and on a second/opposite surface a sheet. However, Gash teaches dry laminating **at least two** plastic films, heating to the melting point of the plastic film **having the lowest melting point**, and preferably **all** of the films are oriented. Thus, in view of the above it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine/optimize the layer configuration as a function of the desired properties of the laminate produced, it being noted Gash clearly suggests three layer laminates, as doing so would have required nothing more than ordinary skill and routine experimentation.

Regarding the average coefficient of linear expansion (LEC), Gash does not specifically disclose that the oriented polyolefin films have an average LEC not exceeding 5×10^{-5} ($^{\circ}\text{C}$) in the 20-80 $^{\circ}\text{C}$ temperature range. However, it is noted the oriented polyolefin materials employed in Gash, particularly oriented high-density polyethylene, are the same as those claimed by applicant, and they are consistent and in agreement with applicants specification including

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applicants preferred materials (Page 9, lines 7-11) such that it appears an average LEC not exceeding 5×10^{-5} ($^{\circ}\text{C}$) in the 20-80 $^{\circ}\text{C}$ is inherent to the oriented polyolefin materials taught by Gash. Furthermore, the admitted prior art (Applicants specification page 7, lines 13-23) discloses "An average linear expansion coefficient of polyolefin in an unoriented state is generally greater than 5×10^{-5} ($^{\circ}\text{C}$) in the 20-80 $^{\circ}\text{C}$ range. Due to the inclusion of the oriented polyolefin material, the polyolefin article of the present invention exhibits a value of not exceeding 5×10^{-5} ($^{\circ}\text{C}$) for average coefficient of linear expansion in the in the 20-80 $^{\circ}\text{C}$ range, as specified above. In other words, the oriented polyolefin material is included in the polyolefin article so that its average coefficient of linear expansion in the 20-80 $^{\circ}\text{C}$ range is maintained at a value of not exceeding 5×10^{-5} ($^{\circ}\text{C}$)" (Emphasis added). Thus, in view of the admitted prior art it appears it is unoriented polyolefin materials that have average LEC values greater than 5×10^{-5} ($^{\circ}\text{C}$) in the 20-80 $^{\circ}\text{C}$ range while oriented polyolefin materials exhibit average LEC values not exceeding 5×10^{-5} ($^{\circ}\text{C}$) such that the admitted prior art is evidence that the claimed LEC values are inherent to the oriented polyolefin materials taught by Gash.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nippon and the admitted prior art as applied in paragraph 3 above or Gash and the admitted prior art as applied in paragraph 5 above, and further in view of Ikenaga et al. (U.S. Patent 4,717,624).

Nash and the admitted prior art (or Gash and the admitted prior art) as applied above teach all of the limitations in claim 14 except for a teaching on using as the oriented polyolefin films those having a minus average coefficient of linear expansion (LEC) and as the unoriented or oriented polyolefin films those having a plus average LEC. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the polyolefin films

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taught by Nippon as modified by the admitted prior art (or Gash as modified by the admitted prior art) those having alternating plus and minus average LEC values (the oriented polyolefin films having the minus average LEC values) to form laminated composites with improved dimensional stability as suggested by Ikenaga et al.

Ikenaga et al. disclose multilayer composites (e.g. including polyolefin containing) comprising a plurality of stacked and bonded sheets. Ikenaga et al. teach the stacked and bonded sheets comprise alternating oriented sheets having minus values for the average coefficient of linear expansion (LEC) next to oriented or unoriented sheets having plus values for the average LEC wherein the alternating arrangement of plus and minus values for the average LEC give the bonded composites improved dimensional stability (Column 1, lines 20-29 and 43-68 and Column 2, lines 12-26 and 30-43 and Column 11, lines 38-30 and Column 12, lines 41-53).

7. Claims 15, 16, 19, 21, 22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nippon and the admitted prior art as applied in paragraph 3 above or Gash and the admitted prior art as applied in paragraph 5 above, and further in view of Barham et al. (U.S. Patent 4,311,660).

Nippon and the admitted prior art (or Gash and the admitted prior art) as applied above teach all of the limitations in claims 15, 16, 19, 21, 22, and 26 except for a teaching on heat-treating the oriented polyolefin films. It would have been obvious to one of ordinary skill in the art at the time the invention was made to heat-treat the oriented polyolefin films taught by Nippon as modified by the admitted prior art (or Gash as modified by the admitted prior art) after they are oriented as was well known in the art to provide the films with increased dimensional stability as shown for example by Barham et al.

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Barham et al. disclose heat-treating oriented polyolefin films after they are oriented to give the films improved dimensional stability. Barham et al. teach the polyolefin films pass through a heat-treatment station, for example heated rollers, wherein the surfaces of the films are heated up to a temperature exceeding the normal crystalline melting temperature of the polyolefin followed by immediate cooling. (Column 1, lines 15-21 and Column 3, lines 58-68 and Column 5, lines 33-37 and 49-54).

Regarding claim 16, one of ordinary skill in the art at the time the invention was made would readily expect the oriented polyolefin films taught by Nippon as modified by the admitted prior art and Barham et al. (or Gash as modified by the admitted prior art and Barham et al.) to have the same melting point ranges following the heat-treatment as those currently claimed as the oriented polyolefin films taught by Nippon as modified by the admitted prior art and Barham et al. (or Gash as modified by the admitted prior art and Barham et al.) are the same as those claimed by applicant, they are consistent and in agreement with applicants specification, and the oriented polyolefin films undergo the same heat treatment as that taught by applicant.

8. Claims 17, 18, 20, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nippon, the admitted prior art, and Ikenaga et al., as applied in paragraph 6 above or Gash, the admitted prior art, and Ikenaga et al. as applied in paragraph 6 above, and further in view of Barham et al. (U.S. Patent 4,311,660).

Nippon, the admitted prior art, and Ikenaga et al. (or Gash, the admitted prior art, and Ikenaga et al.) as applied above teach all of the limitations in claims 17, 18, 20, 23, and 24 except for a teaching on heat-treating the oriented polyolefin films. It would have been obvious to one of ordinary skill in the art at the time the invention was made to heat-treat the oriented polyolefin

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films taught by Nippon as modified by the admitted prior art and Ikenaga et al. (or Gash as modified by the admitted prior art and Ikenaga et al.) after they are oriented as was well known in the art to provide the films with increased dimensional stability as shown for example by Barham et al. (Barham et al. is described above).

Regarding claim 18, one of ordinary skill in the art at the time the invention was made would readily expect the oriented polyolefin films taught by Nippon as modified by the admitted prior art, Ikenaga et al., and Barham et al. (or Gash as modified by the admitted prior art, Ikenaga et al., and Barham et al.) to have the same melting point ranges following the heat-treatment as those currently claimed as the oriented polyolefin films taught by Nippon as modified by the admitted prior art, Ikenaga et al., and Barham et al. (or Gash as modified by the admitted prior art, Ikenaga et al., and Barham et al.) are the same as those claimed by applicant, they are consistent and in agreement with applicants specification, and the oriented polyolefin films undergo the same heat treatment as that taught by applicant.

9. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nippon and the admitted prior art as applied in paragraph 3 above or Gash and the admitted prior art as applied in paragraph 5 above, and further in view of Bruno (U.S. Patent 3,361,607).

Nippon and the admitted prior art (or Gash and the admitted prior art) as applied above teach all of the limitations in claim 25 except for a teaching on the temperature at which the polyolefin films are oriented. However, it is well known in the art that the orientation temperature is a function of the amount of orientation desired, as shown for example by Bruno, such that it would have been well within the ordinary skill of one in the art at the time the invention was made to experimentally determine/optimize the required orientation temperature

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depending upon the amount of orientation desired as doing so would require nothing more than ordinary skill and routine experimentation. Furthermore, it is well known in the art to orient polyolefin materials over the claimed temperature range as shown for example by Bruno such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to orient the polyolefin materials taught by Nippon as modified by the admitted prior art (or Gash as modified by the admitted prior art) within a temperature range of 95-115 °C as only the expected results would be achieved.

Bruno discloses bonding oriented polyolefin films that have been subjected to a heat-treatment. Bruno teaches the polyolefin films are oriented within a temperature range of 95-115°C. However, Bruno further teaches that the amount of orientation, i.e. stretch, and temperature at which the orientation is carried out are interrelated. (Column 3, lines 62-70).

Response to Arguments

10. Applicant's arguments with respect to claims 13-27 have been considered but are moot in view of the new ground(s) of rejection. It is noted the new limitations to claims 13 and 27 (and thus applicants arguments to these limitations) are addressed above.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

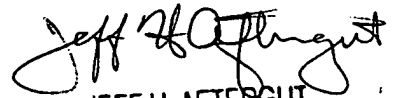
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is (571) 272-1216. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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